S O I L C O N S E R V A T I O N L I T E R A T U R E
SELECTED CURRENT REFERENCES

V.4 May/June,1940 No.3

"The ultimate motive for soil conservation
is human conservation."

Otis Durant Duncan

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Mildred Benton
Librarian

PERIODICAL ARTICLES

Agricultural Conservation

Ball,C.R. Citizens help plan and operate action programs. U.S.Bur. Agr.Econ. Land Policy Rev.3(2):19-27. March-April 1940.
Considers two aspects of several programs including that of the Soil Conservation Service:The cooperation among the levels of government and the extent of participation of private citizens.

Englund,Eric. What price conservation? U.S.Bur.Agr.Econ. Land Policy Rev.3(2):1-11. March-April 1940.
"What can the United States afford to spend for agricultural conservation?
"The development of the implications of this question - entirely apart from periodic debates on appropriations - might help advance the progress of recent years in conservational policies and programs."
The writer suggests "financing conservation on a budget principle which would definitely provide for alternate periods of surplus and deficit financing in conjunction with years of relative prosperity and depression.This in turn would require that conservation work be made a part,perhaps the main part,of a systematic rural works program. This would not only contribute to the conservation of agricultural resources,but also to a better rural-urban economic balance."

Agricultural Engineering

Ekblaw,K.J.T. Engineering factors in a balanced agriculture. Agr. Engin.21(4):127-128. April 1940.
"An address before a meeting of the Southern Section of the American Society of Agricultural Engineers at Birmingham,Ala.,February 7,1940. (Abridged.)"

Lorenzen,C.,jr. Micro-climate and the agricultural engineer. Amer. Met.Soc.Bul.21(3):114-115. March 1940.
Abstract of talk before the No.California branch of the American Meteorological Society,Nov.20,1939.

Avocados

le Roux,J.C. The avocado in South Africa.I.Soil and climatic requirements,varieties,and methods of propagation. Farming in So.Africa 15 (168):89-92,figrs. March 1940.
"References,"p.92.
"According to experience gained in the eastern Transvaal,avocados do well when planted against mountain slopes with satisfactory soil depth.In such instances the land should be properly terraced,if possible prior to the planting of the trees.Contour terraces under construction in California are illustrated in Figure 1.
"Another system of constructing terraces between the tree rows by

frequent ploughing towards the lower side subsequent to planting is practised in the north-eastern Transvaal with success."

Beavers

Beavers water his cattle. Capper's Farmer 51 (4):64. April 1940.
Beaver dams, spaced regularly along a Texas ranch stream, kept the pasture watered during dry years when other stockmen were spending large sums for wells and tanks.

Gustin, W.M. Beaver pay for life with tax-free dams. West.Farm Life 42(9):9. May 1, 1940.
"Each beaver if properly placed is worth $300 from the standpoint of conservation, according to Idaho Game Director Owen W.Morris."

Canopy Interception

Haynes, J.L. Ground rainfall under vegetative canopy of crops. Amer. Soc.Agron.Jour.32(3):176-184, tables, figrs. March 1940.
"Literature cited," p.184.

Contour Line Device

Schoenleber, L.H. A new device for laying out contour lines. Agr. Engin.21(3):91-92, table, figrs. March 1940.

County Planning

Allin, B.W. County land use planning. Mont.Farmer 27(9):3. Jan. 1, 1930.
Traces briefly the evolution of county land use planning from its experimental period in Montana, through the efforts of M.L.Wilson.

Ensminger, Douglas. The community in county planning. U.S.Bur.Agr. Econ. Land Policy Rev.3(2):44-51, diagr. March-April 1940.

Planning for forest and farm. U.S.Ext.Serv., Ext.Serv.Rev.2(3):37. March 1940.
"The county planning committee in Coos County, Oreg., a unified county, has made a detailed study of the local land use situation and is developing an agricultural program to meet county needs, as described on the National Farm and Home Hour."

Cover Crops

Baker, C.E. Cover crop problems in cultivated orchards. Amer.Fruit Grower 60(1):13, 24-25, 27, illus. January 1940.

Dams

Dam busting problem. Wallaces' Farmer and Iowa Homestead 65(7):263. Apr.6, 1940.
Describes, briefly, the apparatus evolved by L.C.Aicher and E.N. Canaday to solve the problem of running machinery over water conserving dams down between the lister rows.

de Szabo,J. A cheap and effective stone-in-wire dam. Farming in So.Africa 15(167):58,figr. February 1940.
An inexpensive type of dam for arresting soil erosion,suggested by the Grootfontein School of Agriculture,South Africa.

Flood,Francis. Wrinkles that hold the water. Farmer-Stockman 53(6): 147,illus. Mar.15,1940.
"Damming is a new wrinkle in contour listing on range pastures in Midland county,west Texas,yet the results on 2,200 miles of dammed furrows made in the county in 1938 and 1939 indicate it is successful."

McFee,R.E. Building an earth dam. Rural New Yorker 99(5474):227, figrs. Apr.6,1940.

Nesbit,R.J. Living dams control gullies.That fence-row washout can do damage. Ohio Farmer 185(6):11,illus. Mar.23,1940.

White,Magner. "We're moving the rain." Sat.Evening Post 212(44): 18-19,36,38,40,42,illus. Apr.27,1940.
Describes the Central Valley,California project which involves two great dams,Shasta Dam on the Sacramento river and Friant Dam on the San Joaquin.

Drought

Gillette,H.P. A portentous drought in the making. Water Works and Sewerage 87(1):38-39,illus. January 1940.
The writer concludes with the following note."Geologists interpret the ancient by the recent past.Hydraulic engineers should reverse this process and thus be led to forecast future regional dry and wet epochs by using cycles that sediments disclose.To do so will mark,I believe,one of the major advances in the science of hydraulic engineering."

Evaporation

Gow,P.L. Evaporation of moisture from soil in large lysimeter pots. Hawaii. Planters Rec.43(4):287-290. Fourth Quarter 1939.
"Water-consumption data for 162 by 2 by 2 ft. concrete lysimeter pots,treated with asphaltum to prevent leakage,are recorded for the months of July,August,and September,1938,with parts of June and October of the same year.These figures indicate losses by evaporation from the uncropped soil of a magnitude which appeared to be 'contrary to certain established ideas with respect to soil-water relationships'." U.S.Off.Expt.Stas.,Expt.Sta.Rec.82(4):449. April 1940.

Richards,L.A.and Russell,M.B. A method for recording evaporation from a porous atmometer cup. Iowa State Col.Jour.Sci.13(1):17-19,illus. October 1938.
"The rate and amount of evaporation from a porous atmometer cup can be recorded by an automatic drop counter."
Figure 1 shows a record of evaporation rate that was taken during the summer of 1937 at the Soil Conservation Service Experiment Station at Clarinda,Iowa.

Farm Forestry

Bruner,M.H. Another approach to farm forestry. Jour.Forestry 38(4): 307-310. April 1940.

A response to John F.Preston's article "The approach to Farm Forestry" in May 1939,issue of the Journal of Forestry.

Summary - "1.Exception is taken to Preston's statement that the farm forestry problem is a baffling one.It is contended that the farmer is usually the victim of economic circumstances,and that he will become interested in woodland management when he can make greater profits from his timber.Greater profits depend largely upon better market conditions and educational work in utilization and marketing.

3.In approaching the farm forestry problem foresters should pay more attention to timber marketing,and also attempt to view the situation through the eyes of the farmer.

4.The profits the farmer usually receives from timber sales are dependent upon(1)existing markets,(2)the economic situation of the landowner,and(3)the intelligence of the seller.

5.Foresters,in general,are too academic in their approach to the farm forestry problem.

6.Exception is taken to Preston's complicated woodland management result demonstration procedure.Accordingly,a more simple procedure is described that is providing the basis for the Extension Service educational program in South Carolina."

Floods and Flood Control

American society of civil engineers.Committee on flood-protection data. Flood protection data.Progress report of the committee. Amer.Soc.Civ.Engin.Proc.66(4):615-626. April 1940.

Annual progress report for 1939 presented by the committee,Gerard H.Matthes,chairman.

Recent publications on floods are included.

Fox,J.M.,Finkle,F.C.,Sonderegger,A.L.,Troxell,H.C.,and Lord,R.S. Transient flood peaks. Amer.Soc.Civ.Engin.Proc.66(4):745-769,figrs., tables. April 1940.

Discussion of paper by H.B.Lynch appearing in November,1939,Proceedings.

Keulegan,G.H.and Patterson,G.W. Mathematical theory of irrotational translation waves. U.S. Natl.Bur.Standards.Jour.Res.24(1):47-101, figrs. January 1940.

"References",pp.100-101.

Research Paper RP1272.

"The growing importance of predicting the occurrence of floods and the rate of travel and height of flood waves as they pass down rivers has led in recent years to a marked increase in the literature on this subject.However,in no language can there be found a comprehensive presentation of the mathematical treatment of the problem of such waves...

"It is for this reason that the National Bureau of Standards,at the suggestion of the United States Weather Bureau,has commenced the preparation of a series of papers dealing with the mathematical theory

of flood waves and other waves of translation.It is not the purpose of these papers to furnish a practical method of predicting the rate of flood-wave travel and the rate of attenuation of the wave in an actual river channel with its complex flow conditions.Instead,the purpose is to furnish a sound mathematical theory on which attempts to solve the practical problems of flood prediction can be based.

"The present paper,the first of the series,deals with the motion of translation waves in channels of uniform,rectangular cross section when the forces of fluid friction are negligible with respect to the inertia and gravitational forces.Later papers in the series as now planned are in various stages of completion and will deal with the following topics:The effect of turbulence and channel slope and configuration on the motion of translation waves;the theory of quasi-permanent regime and the methods of prediction of flood waves;and recent advances in the problem of the deformation of an intumescence."

Maloney,John. Controlling the Red River basin.Flood prevention and water conservation are at last undertaken in the famous Red River Valley of the North. Earth Mover 27(4):7-10,illus. April 1940.

Williams,G.R.and Baker,D.M. Transient flood peaks. Amer.Soc.Civ. Engin.Proc.66(3):546-552,figr. March 1940.
Discussion of paper by Henry B.Lynch published in November 1939 issue.

Woodward,S.M.,Kindinger,M.,Werner,P.W.,and Smith,W.E. Functional design of flood control reservoirs. Amer.Soc.Civ.Engin.Proc.66(4): 695-706,tables,figrs. April 1940.
Discussion of paper by C.J.Posey appearing in October,1939,Proceedings.

Forest Fire Prevention

Briggs,William and Densmore,Jack. When woods burn who gains? Wis.Agr. and Farmer 67(8):5,12,illus. Apr.20,1940.

Shea,J.P. "Our pappies burned the woods" and set a pattern of human behavior in southern forests that calls for new methods of fire prevention. Amer.Forests 46(4):159-162,174,illus. April 1940.
As the result of a survey by the U.S.Forest Service,a ten-point program of education through social action is suggested.

Forestry

Allen,S.W. Holland's school forest. Amer.Forests 46(5):206-208,238, 240,illus. May 1940.
How a talk on community forests by E.V.Jotter,when he was associated with the University of Michigan,inspired the biology department of Holland,Michigan high school to plan a school forest.
Through the cooperation of the Soil Conservation Service and other agencies and individuals the tract of land chosen several years ago today "is a forest,rather small to be sure,but dotting the snow in winter and the white sand in summer with thousands of red pines and white pines;exhibiting also some of the most efficient sand-blow

control to be found anywhere along the great dune belt on the east shore of Lake Michigan."

Dahl, Jerome. Progress and development of the prairie states forestry project. Jour.Forestry 38(4):301-306. April 1940.

"Over five years have passed since President Roosevelt officially launched, by Executive Order, the program of shelterbelt planting in the Plains States of North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, and Texas. The acceptance by the U.S.Forest Service of the administrative responsibility for this program, first known as the Shelterbelt Project, was a source of genuine concern to many foresters and others, who entertained considerable doubt as to its feasibility. A few foresters, however, particularly Plains foresters, saw many possibilities in this new undertaking. Developments to date, in the main, indicate that the program has been very successful."

Grasses and Grassland

Bailey, L.F. Some water relations of three western grasses. I. The transpiration ratio. Amer.Jour.Bot.27(2):122-128, figrs., tables. February 1940.

"Literature cited," p.128.

"In regions of low rainfall, such as in the western grasslands of the United States, plants useful for soil conservation must not only be adapted to binding soil, but they must also be physiologically suited to withstand periods of drought without excessive injury. It is desirable that they should be economical in their use of the limited supply of moisture. In this paper the transpiration ratios of three western grasses commonly used for soil-conservation purposes are considered."

They are Agropyron Smithii Rydb., Bromus marginatus Nees., and Agropyron ciliare (Trin.) Franch.

Bailey, L.F. Some water relations of three western grasses. II. Drought resistance. III. Root developments. Amer.Jour.Bot.27(3):129-135, figrs. March 1940.

"Literature cited," pp.134-135.

"The drought resistance of Agropyron Smithii, A.ciliare, and Bromus marginatus is considered from two standpoints - viz., their ability to withstand dehydration without injury and the ability of their underground parts to remain dormant during periods of drought. Agropyron Smithii loses 41.6 ± 1 per cent of its total water content before permanent wilting ensues. Bromus marginatus and Agropyron ciliare lose 49.1 ± and 50.3 ± 1.2 per cent, respectively, of their total water contents before the onset of permanent wilting. These values indicate only a moderate ability to withstand drought without injury.

The subterranean parts of all three species remained dormant during a period of six months of severe drought, and produced new shoots when water was added to the soil. After another drought period of six months' duration, only Agropyron Smithii resumed growth when water was added to the pots.

Root bisects of field plants of the three grasses revealed that a large percentage of the roots of each species occurred in the upper twenty centimeters of the soil. From the standpoint of the percentage

of surface roots, the spread of surface roots, and the depth of rooting, Agropyron Smithii is the most desirable species for soil-conservation purposes."

Brackeen, L.O. Johnson grass cowman's ally. Prog. Farmer (Ga.-Ala.-Fla. Ed.) 55(4):8, illus. April 1940.
"K.G. Baker, manager of the Black Belt Experiment Station, Marion Junction, Ala., has found a profitable way to utilize Johnson grass fields in a year-round grazing system for producing beef cattle and for building and conserving soils.
"The new system supplements fertilized permanent pastures with temporary pastures of green Johnson grass and clovers during spring and summer and utilizes frosted and stacked Johnson grass in the fields during winter. The system has worked successfully on the experiment station during the past three years and is worthy of the consideration of many Black Belt farmers."

Cates, J.S. Riches from the air. Country Gent. 110(4):21, 93, illus. April 1940.
The author tells of developments and progress in grass breeding.

du Toit, E. Kikuyu grass as an aid in donga reclamation [in South Africa]. Farming in So. Africa 15(167):55-56, illus. February 1940.

Fischer, G.W. Grass diseases occurring in the Pullman nursery unit of the Soil Conservation Nurseries, Pullman, Washington, during 1939. U.S. Bur. Plant Indus. Div. Mycol. and Dis. Survey. Plant Dis. Reporter 24(5): 108. Mar. 15, 1940.

Fuelleman, R.F. and Burlison, W.L. A comparison of yields and composition of some Illinois pasture plants. Amer. Soc. Agron. Jour. 32(4):243-255, tables. April 1940.
"Data are presented showing the yields of oven-dry forage from Reed canary grass, brome grass, Kentucky bluegrass, and orchard grass pastures at Urbana, Illinois.

Grass can be made to grow on deserts but it takes knowledge and planning. Ariz. Prod. 18(22):13, illus. Jan. 6, 1940.
J.O. Bridges, of New Mexico experimental station, outlines the 7 steps essential to putting grass on the desert.

Roberts, Clarence. Bermuda grass is coming into its own. Farmer-Stockman 53(9):235, illus. May 1, 1940.
"When we combine the ability of Bermuda grass to prevent soil erosion, the large amount of grazing it will furnish per acre in relation to other crops growing on the same soil, and its high mineral content, the arguments in behalf of this crop grow formidable. It appears to be about the perfect answer to an imperative need to stop erosion on land which has been farmed to death, and to produce at the same time something of value from that land."

Savage, D.A. and Smith, J.E. Regrassing cultivated lands in the Southern Great Plains. Cattleman 26(10):121-132, figrs., tables. March 1940.

Sears,P.B. Importance of grassland reserves. Sci.Monthly 50(4): 379-382,illus. April 1940.

Grazing

Bailey,R.Y. A grazing program for soil conservation in the southeast. Soil Conserv.5(10):243-244,253,259,illus. April 1940.

Chandler,R.F.,jr. The influence of grazing upon certain soil and climatic conditions in farm woodlands. Amer.Soc.Agron.Jour.32(3): 216-230,tables,figrs. March 1940.
"Literature cited,"p.230.

Featherly,H.I.and Gernert,W.B. Grazing in Oklahoma. Amer.Hereford Jour.30(21):18-19,62-63,illus. Mar.1,1940.
A discussion by A.and M.College authorities.

Hanson,W.R.and Stoddart,L.A. Effects of grazing upon bunch wheat grass. Amer.Soc.Agron.Jour.32(4):278-289,figrs.,tables. April 1940.
"Literature cited,"pp.288-289.

Hein,M.A. Grazing management for permanent pastures in corn belt and northeastern states. Soil Conserv.5(10):248-250,illus. April 1940.

Gullies

Bryan,Kirk. Gully gravure - a method of slope retreat. Jour.Geomorph. 3(2):89-107,figrs. April 1940.

Highway Erosion Control

Erickson,L.F. Difficulties in Idaho road-building.How the principles of stabilization were applied to holding an embankment over a marshy basin. Earth Mover 27(2):17-19,illus.,diagr. February 1940.

Murphy,F.C. Preventing shoulder and slope erosion. Highway Mag.31(3): 63-65. March 1940.
Fourth of a series of articles on prevention of erosion of road embankments and cuts.

Murphy,F.C. Subdrainage rules are simple. Highway Mag.31:41-43,illus. February 1940.
"Third of a series of articles on erosion protection of cuts and embankments."

Murphy,R.D. Soil erosion on slopes:methods of correction and prevention on Massachusetts State highway systems. Roads and Streets 83(2):60, 63-64. February 1940.
Review of methods of soil erosion control developed by Department of Public Works of Massachusetts;control of surface water;prevention of erosion due to rainfall;practical examples of soil treatment for prevention of erosion on highway slopes.

Hydraulics and Hydrology

Bakhmeteff,B.A. Relation of the statistical theory of turbulence to hydraulics. Amer.Soc.Civ.Engin.66(3):581-583. March 1940.
Discussion of paper by A.A.Kalinske published in October,1939 issue.

Gauthier,F.B. Orthographic photography applied to experimental hydraulics. Photo Tech.2(4):33-35,illus. April 1940.
"Orthographic photographs as a medium for presenting special types of data obtained on small scale hydraulic models have long been recognized by experimental engineers as an especially valuable adjunct to any report.The East River model study,conducted for the New York District Engineer at the U.S.Waterways Experiment Station,Vicksburg, Mississippi,is an excellent example of the practical application of this type of photography to experimental hydraulics."

Hubbard,C.W.,McNown,J.S.,and Shulits,Samuel. Relation of the statistical theory of turbulence to hydraulics. Amer.Soc.Civ.Engin.Proc.66(4): 709-716. April 1940.
Discussion of paper by A.A.Kalinske appearing in October,1939, Proceedings.

Nelidov,I.M. Pressure-momentum theory applied to the broad-crested weir. Amer.Soc.Civ.Engin.Proc.66(4):804-808,figr. April 1940.
Discussion of paper by H.A.Doeringsfeld appearing in December,1939, Proceedings.

Pomerene,W.H. Instruments for hydrologic research. Agr.Engin.21(3): 102. March 1940.

Irrigation and Drainage

Bushnell,D.H. Drainage investigations of the farm credit administration. Agr.Engin.21(3):107-109,figrs. March 1940.

Haas,A.R.C. Temporary effect of an irrigation on pH of soil. Citrus Leaves 19(11):1-2,22,tables. November 1939.

Kelley,W.P. Permissible composition and concentration of irrigation water. Amer.Soc.Civ.Engin.Proc.66(4):607-613. April 1940.
"The limit of permissible salt content of irrigation water is greatly influenced by variables inherent in the soil,the climatic conditions, and the kind of crops grown.It is of the greatest importance to apply saline irrigation water in quantities in excess of the crop requirements,in order that some leaching of the root zone will take place. Therefore,the maintenance of good drainage condition in the soil is very important.Salts,whether native to the soil or applied in the irrigation water,cannot be removed effectively unless water can percolate through the soil,and this can never be accomplished adequately where the ground water is near the surface."

Man-made rain. N.J.Farm and Garden 10(10):5,40,illus. October 1939.
Irrigation in New Jersey.

Mercer,R.D. Irrigated pastures. Mont.Farmer 27(14):13. Mar.13,1940.

Morrison,Stu. New water in New Mexico. West.Farm Life 42(9):3,12,illus. May 1,1940.
Indicates expected value to farmers and ranchers of the completed Tucumcari irrigation project.

Taylor,F.J. Oregon's half-wet farming. Country Gent.110(4):15,38-39, illus. April 1940.
Describes irrigation practices in the Willamette Valley termed "half-wet faming" by Dr.W.L.Powers of Oregon State Agricultural College.

Young,Frank. Lifeblood for the Navajos. West.Farm Life 42(6):3,14, illus. Mar.15,1940.
Irrigation projects sponsored by the federal government and the Bureau of Indian Affairs are making it possible to vision "a future with additional canals and storage dams which will save the waste water and convert the Chin Lee Valley,with its thousands of acres of semi-arid land,into a true Navajo farmers' paradise."

Land Management and Utilization

Blaisdell,D.C. Traveling conferences show regional land use problems. U.S.Ext.Serv.Ext.Serv.Rev.2(3):39. March 1940.
"A 'county agent's tour' on a regional scale - this in a phrase describes the traveling conferences on agricultural land use planning completed in January."

Clark,N.M. Again the wilderness. Country Gent.110(4):19,44-45,illus. April 1940.
"Control of land use is restoring the wilderness in Northern Wisconsin. Scars left by fire,exploitation and ignorance are disappearing under a new cover of green which promises to yield the region the largest profit in the long run.County forests plus county zoning are demonstrating here that local control can govern wisely even the large-scale use of a difficult natural resource."

How are you treating your land? Prog.Farmer(Tex.Ed.)55(5):8,52,illus. May 1940.
A list of 25 questions developed from combined suggestions of the Soil Conservation Service,farmers,and Progressive Farmer editors which should enable every farmer definitely to check his plans for using his land wisely and for conserving its resources.

Howard,R.G. Price river district,Utah,and the submarginal land problem. Soil Conserv.5(11):283-284. May 1940.

Hurst,F.J. Grass grows greenbacks.Numerous pasture demonstrations in the lower South strikingly prove that good pastures pay handsome dividends on labor and money invested. South.Agr.70(4):8,illus. April 1940.
"After fighting grass for nearly 100 years in an unbalanced,hazardous and unprofitable system of one-crop farming that impoverished the soil, practically excluded productive livestock,limited cash returns largely

to cotton,and made it impossible to use land,labor and equipment efficiently throughout the year,Mississippi farmers are now building permanent pastures as a basic part of a sound system of diversified farming and soil conservation that is already bringing in added cash from increased sales of cattle,calves,hogs,meat,milk,cream,butter, chickens and eggs."

Hurst,F.J. Utilizing cut-overs in Mississippi. Better Crops with Plant Food 24(3):16-19,45-46,illus. March 1940.

"The Coastal Plain area,once covered with virgin forests of stately longleaf yellow pines,which yielded a harvest of gold to a few lumbermen,now promises to become a land of flourishing sugar cane fields, thriving satsuma orange orchards,productive tung oil groves,new pine forests,improved permanent pastures,and profitable livestock enterprises."

It is reported that construction of terraces and production of legumes have saved tung orchards from dying and greatly increased the production of tung nuts.

Pearson,G.A. Forest land use. Jour.Forestry 38(3):261-270. March 1940.

"The fact that forest lands,especially after cutting are commonly adapted to a variety of uses has given rise to widespread practice of multiple use.Multiple use is not a product of studied planning,but rather the outgrowth of no planning.It rarely realizes the highest benefits obtainable from the land.It is best adapted to lands of such low value that priorities are of little consequence.Realization of maximum returns calls for specialized management directed toward making the most of the principal resource and strictly subordinating, though not excluding,minor interests.An effective forestry program would set aside adequate areas for specialized management of timber, water,recreation,wildlife,and range livestock,leaving the residue not needed for special purposes to be handled under multiple use but subject to specialized management whenever conditions demand.One hundred million acres of producing timberland selected with due regard for site quality,species,accessibility,and centers of consumption would,under intensive management,yield ample timber supplies for this country,as far as demands can now be foreseen.Considerably smaller areas would suffice for other specialized activities except possibly city watersheds.Under such a program the nation's timber supply can be greatly improved in quality,and it can be produced at lower cost and with benefit to a greater number of people through employment than if grown less intensively on a much larger acreage."

Schell,H.S. Adjustment problems in South Dakota. Agr.Hist.14(2): 65-74. April 1940.

"South Dakota is essentially agricultural and will remain so.Fifty-six percent of its population in 1930 resided on farms.It ranks ninth with respect to total area of grade-one land.The maladjustments that exist in the central and western parts can be alleviated.The past has clearly shown that individual efforts alone will not effect the correction and that collective action must be brought into play.A rational long-term program must be formulated,local pressures resisted, and political expediencies avoided.Contradictions in the Federal farm

program must be eliminated.Crop farmers on submarginal lands must not be subsidized as they were under the Agricultural Adjustment Administration.Moreover,there must be a proper coordination between Federal and State agencies.The problem is basically one of conservation - the conservation of human resources.As the farm economy becomes stabilized,societal adjustments will automatically follow."

Scott,K.D. The folks on poor soil. Amer.Agr.137(7):197-218,illus. Mar.30,1940.
The problem of people who live on the poor lands as related to the New York State land classification plan.

Walker,R.H.and Jennings,D.S. Soil survey and land classification in Utah. Utah Farmer 56(15):4,22,illus. Mar.10,1940.

Willman,J.P. Hill country... sheep production. Amer.Agr.137(9): 255-267,illus. Apr.27,1940.
"Should much of our typical hill lands of New York State be allowed to go back to trees or are some of these areas suited to large-scale sheep production?To obtain answers to this and other important questions is the chief object of an experimental sheep farm located in Livingston and Ontario counties,a few miles from Springwater,New York. The farm,known as the Kenwood Sheep Farm,purchased during the fall of 1937 by Kenwood Mills,F.C.Huyck and Sons,Albany,New York,is operated in cooperation with the New York State College of Agriculture. The experiment is to be run for ten years."

Lysimeter Studies

Scholz,H.F.and Stoeckeler,J.H. A lysimeter installation for studying forest influence problems. Jour.Forestry 38(3):256-260,figrs. March 1940.

Maps and Mapping

Birdseye,C.H. Stereoscopic phototopographic mapping. Assoc.Amer. Geog.Ann.30(1):1-24. March 1940.
Discusses the development of various uses of photography in mapping; history of the use of photogrammetry in the United States;application of photogrammetry to planimetric and topographic contour mapping and photogrammetric methods now used by Geological Survey.

Blee,H.H. Third dimension maps. Mil.Engin.32(183):187-190,figrs. May-June 1940.

Thornthwaite,C.W.and Sharpe,C.F.S. Scientific apparatus and laboratory methods.Patterns on maps and drawings by the carbon transfer process. Science 91(2363):367-368,figrs. Apr.12,1940.
"The preparation for photolithographic reproduction of large numbers of isorithmic maps at the Muskingum Climatic Research Center has led to the development of a simple and inexpensive process for shading them in distinctive patterns of black and white."
This new method is known as the carbon transfer process.

Meetings

Resume of a meeting of the Society of American Foresters held in Columbus, Ohio, under the auspices of the American association for the advancement of science, December 29 and 30, 1939. Jour. Forestry 38(3):223-230. March 1940.

Papers of interest, for which abstracts are given, are as follows: Climatic research and forestry, by C.W. Thornthwaite; A thermoelectric method for following moisture changes of the soil in situ, by Byron Shaw and L.D. Baver; Influence of soil type and other site factors on the success of tree plantings for erosion control, by W.S. Ligon; The influence of grazing upon certain soil and climatic conditions in farm woodlands, by Robert F. Chandler, jr.; Growth of seedling black locust and green ash in relation to subsoil acidity and fertility, by A.L. McComb and F.J. Kapel; Reconstruction of the hardwood forest soil profile by vegetative covers, by John T. Auten.

Titles and abstracts of papers Chicago, Illinois, 1939 meeting of Association of American Geographers. Assoc. Amer. Geog. Ann. 30(1):44-80. March 1940.

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"In places where it is difficult to grow grass such as on steep banks,mats of glass wool laid on the soil like a blanket,after it has been loosened and the seeds planted,will prevent water,wind and birds from dispersing the seeds,it is said.

"In addition,it is pointed out that the glass fibers may be made from minerals containing calcium,magnesium,phosphates,sulfides, potassium and other elements which speed the growth of plants.As the glass wool slowly disintegrates the growing plants utilize these elements.

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"...In the absence of any clear philosophy of control by society of the forces which science has delivered into the hands of this generation,and in the face of the limitations imposed by political management,tropical exploitation bids fair to become a major problem in world recovery following the present war when both production and distribution will make fresh demands upon our wit and our science."

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"The coastal province affords ample material for discussion of factors involved in formation of denudational land features.Variations of climate,rainfall,and lithology of the country rocks are scrutinized.Sheet erosion is presented as a particularly effective process in areas of exposed calcareous rocks.
"...It is interesting to note that wind appears to be only a minor agent of erosion in this zone,while man's destructive deforestation is given as a major cause of the extensive denudation.
"The discussion of the Sahara,third and last of the physiographic provinces,is rather short.The author explains that the geomorphic features of this region are so typical of the general desert cycle

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"A method has been developed whereby the size distribution of the pores in the soil may be measured by applying tensions equal to the capillary tensional forces developed in the soil.The tensions were automatically controlled at any given value,and the amount of water removed from the soil was measured in a burette.
"The capillary pull may be counteracted by reducing the pressure on the free water surface.When this pressure is so reduced that the tension on the free water surface equals that of the capillary

tension of the water in the soil,there will be no movement of water. If the tension on the free water surface is greater than that exerted by the water in the soil,there will be a movement of water from the soil to the free water.

"All calculations are based on the capillary-rise formula.This is possible because the water in the soil is subject to the same surface tensional forces which are active in capillary tubes.According to the second law of thermodynamics,when equilibrium exists in the soil,the water in the pores must have the same curvature as it would have in a capillary tube of the same diameter."

"Permeability studies show that percolation and aeration in soils are dependent upon the size rather than the amount of pore space,and that not all soils,even those of the same mechanical composition, apparently have the same sized pores.

"The optimum size distribution of pores is not known,but it is believed that this method will throw much light on the problem of soil permeability and structure.

"The following conclusions may be drawn from the results:

"There is no relationship between the total porosity and the effective pore space.

"There is a direct relationship between effective pore space and permeability.

"Further studies should make it possible to determine whether certain crops such as tobacco are adapted to specific soils,and,if drainage is necessary,what type and what spacing are required."

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"(2)The characteristics of soils with respect to(1)available water capacity,(2)permeability to water and(3)permeability to air are largely determined by the volume and size distribution of the soil pore space.The latter is conveniently characterized by measuring the water held by a soil at varying moisture tensions.

"(3)In recognition of the foregoing,it may be concluded that a better understanding of root-soil relationships should result from more general application of interpretative studies of soil pore conditions to root development,and from the development and application of micro-methods for studying the conditions,both physical and chemical,existing at the actual root soil interface."

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Entire article quoted.

BOOK AND PAMPHLET NOTES AND ABSTRACTS

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